

BUTCHER-BUSINESS MATH A –7TH PERIOD – OFF-SITE LEARNING PACKET DAY 6

State Indicator/Competency:

1. Calculate expected values and use them to solve problems.

Instructional Objective(s):

8.6a Economic Statistics

1. Students will be able to identify consumer price index data from a chart with 80% accuracy.

Materials: calculator, Day 6 Packet

Method of Instruction: Independent

Instructions:

1. Read through lesson and examples.
2. If able, watch suggested videos for extra instruction.
3. Complete the practice problems. Check your answers to see how you're doing.
4. Complete attached worksheet. Show your work. Worksheet will be collected and graded.
5. Questions? Contact me by email. butcherna@mwood.cc

Activities:

Consumer Price Index

The **Consumer Price Index (CPI)** is a widely reported measure of how much the prices of goods and services typically bought by consumers have changed when compared to a base period. A **base period** is a period of time with which comparisons are made. The base period for most of the items in the CPI is the 1982–84 period.

The CPI uses a single number, called an index number, to compare price changes to the base period. The index number for the base period is always equal to 100.

The Historical Report of the CPI shows index numbers for various categories of consumer goods and services. The All Items column gives an average number considering all categories and is the number commonly used when referring to the CPI. Note that two categories, Recreation and Education & Communication, were added to the CPI in 1997, so 1997 is their base period.

Historical Report—Consumer Price Index, 1994–2007
Categories of Goods and Services

| Years | All Items | Food & Beverages | Housing | Apparel | Transportation | Medical Care | Recreation | Education & Communication | Other |
|---------|-----------|------------------|---------|---------|----------------|--------------|------------|---------------------------|-------|
| 1982–84 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | — | — | 100.0 |
| 1994 | 148.2 | 147.2 | 145.4 | 130.5 | 137.1 | 215.3 | 93.0 | 90.3 | 202.4 |
| 1995 | 152.4 | 150.3 | 149.7 | 130.6 | 139.1 | 223.8 | 95.6 | 93.9 | 211.1 |
| 1996 | 156.9 | 156.6 | 154.0 | 130.3 | 145.2 | 230.6 | 98.5 | 97.1 | 218.7 |
| 1997 | 160.5 | 159.1 | 157.7 | 131.6 | 143.2 | 237.1 | 100.0 | 100.0 | 230.1 |
| 1998 | 163.0 | 162.7 | 161.3 | 130.7 | 140.7 | 245.2 | 101.2 | 100.7 | 250.3 |
| 1999 | 166.6 | 165.9 | 164.8 | 130.1 | 148.3 | 254.2 | 102.0 | 102.3 | 263.0 |
| 2000 | 172.2 | 170.5 | 171.9 | 127.8 | 154.4 | 264.8 | 103.7 | 103.6 | 274.0 |
| 2001 | 177.1 | 175.3 | 177.6 | 124.8 | 149.0 | 278.3 | 105.3 | 106.9 | 287.0 |
| 2002 | 179.9 | 177.8 | 181.1 | 121.5 | 154.2 | 291.3 | 106.5 | 109.2 | 295.8 |
| 2003 | 184.0 | 184.1 | 185.1 | 119.0 | 154.7 | 302.1 | 107.7 | 110.9 | 300.2 |
| 2004 | 188.9 | 188.9 | 190.7 | 118.8 | 164.8 | 314.9 | 108.5 | 112.6 | 307.8 |
| 2005 | 195.3 | 193.2 | 198.3 | 117.5 | 172.7 | 328.4 | 109.7 | 115.3 | 317.3 |
| 2006 | 201.6 | 197.4 | 204.8 | 118.6 | 175.4 | 340.1 | 110.8 | 118.9 | 326.7 |
| 2007 | 207.3 | 206.9 | 210.9 | 118.3 | 190.0 | 357.7 | 111.7 | 121.5 | 337.6 |

The CPI may be expressed in several ways. For example, the CPI for “All Items” in 2007 is 207.3. This means that the cost of goods in 2007 was 207.3% of their cost in the base period. The percent increase in prices from the base period to 2007 is 107.3% (207.3 - 100.0).

Looking at the relationship in another way, it cost \$207.30 in 2007 to buy the same goods for which you would have paid \$100 in the base period.

Example:

1. Use the table above to find the CPI for Housing for 2007 and the percent the 2007 CPI increased from the base period.

Find the Housing Column on the top and 2007 on the left. The CPI index number for 2007 is 210.9

To find the CPI percent increase subtract the CPI from 2007 – CPI in 1982-84
 $210.9 - 100 = 110.9\%$

2. Use the CPI table. By what percent did the CPI for Apparel increase from the base period to 1994? to 2007?

CPI index number for 1994: 130.5

CPI percent increase: $130.5 - 100 = 30.5\%$

CPI index number for 2007: 118.3

CPI percent increase: $118.3 - 100 = 18.3\%$

Practice:

1. Use the CPI table. By what percent did the CPI for Medical Care increase from the base period to 2007?
(Answer: 257.7%)

2. Use the CPI table. By what percent did the CPI for All Items increase from the base period to 1994?
(Answer: 48.2%)

Assignment: 8.6a CPI worksheet (10 pts)

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8.6a CPI

Name: _____

1. Use the CPI table in the note packet to find the index number and the percent increase from the base period for each year and CPI category shown below.

| | Year | CPI Category | Index Number | Percent Increase from Base Period |
|-----------|-------------|---------------------|---------------------|--|
| a. | 2006 | All Items | | |
| b. | 2005 | Medical Care | | |
| c. | 2003 | Food | | |
| d. | 2004 | Housing | | |
| e. | 2007 | Transportation | | |

2. Use the CPI table to find the rate of inflation for these years, to the nearest tenth percent:

a. 1997

b. 2001

c. 2007

3. Use the CPI table and compare the categories of Food, Housing, Apparel, and Transportation for 2002 with the base period. Which category:

a. showed the greatest increase and what was the percent increase?

b. showed the smallest increase and what was the percent increase?

c. had a percent increase nearest to the increase for the “All Items” category?